

L11 ANSWER 1 OF 2 FSTA COPYRIGHT 2000 IFIS  
AN 1998(08):J1752 FSTA FS FSTA  
TI Award winning fruits.  
AU Anon.  
SO Food Ingredients and Analysis International, (1998) Jan./Feb., 55.  
ISSN: 0968-574X.  
DT Journal  
LA English  
AB Manufacture and applications of naturally-flavoured fruit pieces, which  
have been developed by Ocean Spray and use **cranberries** as a  
base, are described. They are prepared by **infusing** a sucrose  
syrup into sliced high grade **cranberries** until a specified  
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They can replace dried fruits and other types of restructured fruit  
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CT **CRANBERRIES**; FRUITS DRIED; DRIED FRUITS  
TN Ocean Spray

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L1 ANSWER 1 OF 1 REGISTRY COPYRIGHT 2002 ACS

RN 308062-73-9 REGISTRY \*

\* Use of this CAS Registry Number alone as a search term in other STN files may result in incomplete search results. For additional information, enter HELP

RN\* at an online arrow prompt (=>).

CN **Anthocyanins** (CA INDEX NAME)

OTHER NAMES:

CN Anthocyanidins, glycosides

CN Anthocyanin diglucosides

CN Anthocyanin diglycosides

CN Anthocyanin glycosides

CN Anthocyanosides

CN Cyanins

CN Di-, anthocyanin glycosides

CN Difrarel

CN E 163

CN E 163 (dye)

CN Glucosides, anthocyanin

CN Glucosides, anthocyanin di-

CN Glucosides, di-, anthocyanin

CN Glycosides, anthocyanidin

CN Glycosides, anthocyanin

CN Glycosides, anthocyanin di-

CN Sefcal

MF Unspecified

CI MAN, CTS

SR CA

\*\*\* STRUCTURE DIAGRAM IS NOT AVAILABLE \*\*\*

Pratt 09/447,023

=> d query

L1 1 SEA FILE=REGISTRY ANTHOCYANINS/CN  
L4 1224 SEA FILE=HCA CRANBERR? OR CRAN(W) (BERRY? OR BERRIE?)  
L5 22502 SEA FILE=HCA L1 OR ANTHOCYAN? OR CYANIN# OR DIFRAREL OR  
DIANTHOCYAN? OR SEFCAL  
L6 144 SEA FILE=HCA L4 AND L5  
L7 41 SEA FILE=HCA L6 AND JUICE#  
L8 32 SEA FILE=HCA L7 NOT 1999-2002/PY

=> d cbib abs hitrn 18 1-32

L8 ANSWER 1 OF 32 HCA COPYRIGHT 2002 ACS

127:49681 Fruit beverage. Nagel, Peter; Dechent, Hans-Mario; Simson, Ingrid (Eckes-Granini GmbH & Co. Kg, Germany). Ger. DE 19607754 C1 19970515, 10 pp. (German). CODEN: GWXXAW. APPLICATION: DE 1996-19607754 19960229.

AB A fruit beverage contains total fruit **juice** .gtoreq.20 wt.% (of which blood orange **juice** represents .gtoreq. 25% with .gtoreq.1 addnl. fruit **juice**), water, a sweetening agent, and other additives if necessary; turbidity is .ltoreq.1500 NTU, and av. particle size of the pulp is <4 .mu.m.

L8 ANSWER 2 OF 32 HCA COPYRIGHT 2002 ACS

124:173768 HPLC method for determination of **anthocyanins** in colored **juices** and other pigmented foods. Koswig, S.; Hofsommer, H. -J. (GfL - Gesellschaft Lebensmittel-Forschung mbH, Berlin, D-10787, Germany). Fluessiges Obst, 62(4), 125, 128-30 (German) 1995. CODEN: FLOBA3. ISSN: 0015-4539. Publisher: Fluessiges Obst GmbH.

AB **Anthocyanin** fingerprints (chromatograms) were obtained for products such as blackberry, strawberry, blood orange, and blueberry **juices** by reversed-phase HPLC on a RP-18 column with gradient elution and detection at 518 nm. The fingerprints were sufficiently differentiated to permit construction of an atlas for purposes of authentication.

L8 ANSWER 3 OF 32 HCA COPYRIGHT 2002 ACS

123:337665 **Anthocyanin** analysis as a measure of glycosidase activity in enzymes for **juice** processing. Wightman, Jolynne D.; Wrolstad, Ronald E. (Dept. Food Sci. Technol., Oregon State Univ., Corvallis, OR, 97331-6602, USA). Journal of Food Science, 60(4), 862-7 (English) 1995. CODEN: JFDSAZ. ISSN: 0022-1147. Publisher: Institute of Food Technologists.

AB A screening procedure combining HPLC and spectrophotometric analyses was developed to measure glycosidase activity of enzyme preps. used for **juice** processing. Enzyme preps. (27) were evaluated; several contained .beta.-galactosidase activity which can decomp. **cranberry juice** pigments. .beta.-Galactosidase and .alpha.-arabinosidase activities were also detd. using std. procedures (nitrophenol glycosides as substrates). Comparative results showed inconsistencies between the two procedures. **Cranberry juice** processing demonstrated that some enzyme preps. could decomp. **anthocyanin** pigments under processing conditions. Pigment loss was much higher when enzymes were used with **juice** than with crushed fruit.

L8 ANSWER 4 OF 32 HCA COPYRIGHT 2002 ACS

112:137635 Detection of adulteration in several fruit berry drinks and concentrates. Wrolstad, Ronald E.; Hong, Victor; Spanos, George (Dep. Food Sci. Technol., Oregon State Univ., Corvallis, OR, USA). Food Science and Technology (New York, NY, United States), 30(Adulteration Fruit Juice Beverages), 377-402 (English) 1988. CODEN: FSTEEM. ISSN: 0891-8961.

AB A review with 27 refs. on the **anthocyanidin**, org. acid, sugar, and sugar alc. contents of **cranberry**, red raspberry, and

blackberry **juices** and the use of these compositional data for detection of adulteration in fruit **juices**, their concs., and fruit **juice** drinks.

L8 ANSWER 5 OF 32 HCA COPYRIGHT 2002 ACS

106:48745 Detection of enocyanin in **cranberry juice** cocktail by HPLC **anthocyanin** profile. Hale, M. L.; Francis, F. J.; Fagerson, I. S. (Dep. Food Sci. Nutr., Univ. Massachusetts, Amherst, MA, 01003, USA). J. Food Sci., 51(6), 1511-13 (English) 1986. CODEN: JFDSA2. ISSN: 0022-1147.

AB Adulteration of **cranberry juice** products by enocyanin, a colorant from grapes, was detected by comparing HPLC chromatog. profiles of **cranberry anthocyanins** with those from enocyanin. Two peaks present in all enocyanin samples but not in **cranberries** were identified as delphinidin-3-glucoside [6906-38-3] and petunidin-3-glucoside [6988-81-4]. A group of unidentified pigments which eluted after the **cranberry** pigments was also present in enocyanin. It was possible by considering differences in the chromatograms to detect replacement of 5% or more of the expected amt. of **cranberry juice in cranberry juice** cocktail by a soln. of enocyanin. A CG-50 column was used to conc. the pigments followed by chromatog. on a polymer styrene column at pH 1.6. The method gives reliable results even on samples 18 mo of age.

L8 ANSWER 6 OF 32 HCA COPYRIGHT 2002 ACS

105:75954 Factors affecting the **anthocyanin** content of **cranberry**. Sapers, Gerald M.; Graff, Gavin R.; Phillips, John G.; Deubert, Karl H. (East. Reg. Res. Cent., Agric. Res. Serv., Philadelphia, PA, 19118, USA). J. Am. Soc. Hortic. Sci., 111(4), 612-17 (English) 1986. CODEN: JOSHB5. ISSN: 0003-1062.

AB Samples of 16 **cranberry** (*Vaccinium macrocarpon*) clones, sorted into subsamples on the basis of berry size and coloration, were analyzed for **juice** content, sol. solids, titratable acidity, and **anthocyanin** content. The sol. solids : acidity ratio was greater for more highly colored subsamples but did not vary with berry size. The **anthocyanin** content of subsamples of different berry size varied in proportion to the surface to vol. ratio. **Anthocyanin** recovery in expressed **juice** was independent of berry coloration and size. Variability in **anthocyanin** content within samples reflected differences in environmental factors, such as light exposure, superimposed on ripeness differences. Variability in sample **anthocyanin** content depended more on berry size differences than on differences in surface coloration.

L8 ANSWER 7 OF 32 HCA COPYRIGHT 2002 ACS

104:185099 Detection of adulteration in commercial **cranberry juice** drinks and concentrates. Hong, Victor; Wrolstad, Ronald E. (Dep. Food Sci. Technol., Oregon State Univ., Corvallis, OR, 97331, USA). J. - Assoc. Off. Anal. Chem., 69(2), 208-13 (English) 1986. CODEN: JANCA2. ISSN: 0004-5756.

AB Thirty-one samples of com. **cranberry juice** drink and one sample of com. **cranberry juice** conc. were analyzed for nonvolatile acids and **anthocyanidin** profiles by liq. chromatog. (LC). UV-visible spectral measurements were used to measure pigment concn., polymeric color, and percent polymeric color. Nineteen of the 31 samples analyzed were adulterated. The adulterated samples had nonvolatile org. acid profiles indicative of added malic [6915-15-7] and/or citric acid [77-92-9]. **Anthocyanidin** profiles of the adulterated samples showed the presence of substantial quantities of delphinidin [528-53-0] and malvidin [643-84-5], neither of which are present in **cranberries** in significant amts. Grape skin ext. is believed to be the added colorant.

L8 ANSWER 8 OF 32 HCA COPYRIGHT 2002 ACS

104:185098 **Cranberry juice** composition. Hong, Victor; Wrolstad, Ronald E. (Dep. Food Sci. Technol., Oregon State Univ., Corvallis, OR, 97331, USA). J. - Assoc. Off. Anal. Chem., 69(2), 199-207 (English) 1986. CODEN: JANCA2. ISSN: 0004-5756.

AB Eight samples of **cranberries** (*Vaccinium macrocarpon*) representing the major varieties and principal com. growing regions in the United States were processed into **juice**. Four of the 8 samples were concd. to 50.degree. Brix. Liq. chromatog. (LC) was used to det. nonvolatile org. acid, **anthocyanidin**, and sugar profiles. UV-visible spectral methods were used to det. **anthocyanin** concn., polymeric color, and percent polymeric color. Other data presented include stable isotope carbon ratios, degree Brix, pH, and Hunter color parameters. These data serve as an authentic data base for use in detection of adulteration.

L8 ANSWER 9 OF 32 HCA COPYRIGHT 2002 ACS

104:18741 Detection of enocyanin in **cranberry juice** cocktail by color and pigment profile. Francis, F. J. (Dep. Food Sci. Nutr., Univ. Massachusetts, Amherst, MA, 01003, USA). J. Food Sci., 50(6), 1640-2, 1661 (English) 1985. CODEN: JFDSAZ. ISSN: 0022-1147.

AB Addn. of enocyanin to **cranberry juice** cocktail can be detd. by a 4-step color and pigment profile. Enocyanin colorant is slightly more blue; therefore, a simple measurement of color will detect samples with 12% or less **cranberry juice**. **Cranberry juice** cocktail normally contains 25% **cranberry juice**. **Anthocyanins** and flavonoids, recoverable by a CG-50 ion exchange column, are lower in samples with 12% or less **cranberry juice**. **Anthocyanin** aglycons, found in grapes and not in **cranberries**, can be detected by paper chromatog. in Formic reagent. Replacement of 50% of **cranberry juice** by a soln. of enocyanin and citric acid, can be detected by paper chromatog. of **anthocyanins** in 1% HCl in water.

L8 ANSWER 10 OF 32 HCA COPYRIGHT 2002 ACS

99:19787 **Cranberry** quality: selection procedures for breeding programs. Sapers, G. M.; Phillips, J. G.; Rudolf, H. M.; DiVito, A. M. (East. Reg. Res. Cent., U.S. Dep. Agric., Philadelphia, PA, 19118, USA). J. Am. Soc. Hortic. Sci., 108(2), 241-6 (English) 1983. CODEN: JOSHB5. ISSN: 0003-1062.

AB Samples of 45 **cranberry** clones (*Vaccinium macrocarpon*) were analyzed for factors relating to fruit quality and processability to develop selection procedures for breeding programs. High correlations were obtained between tristimulus reflectance measurements on whole or pureed **cranberries** and the **juice** color, detd. by spectrophotometric or tristimulus transmission measurements. Differences between **cranberry** samples in the proportions of individual **anthocyanins** were small and not correlated with berry or **juice** color. A 3-stage sequence of simple measurements, entailing minimal sample prepn., was developed for selection. First- and second-stage selections were based on the application of discriminant anal. to tristimulus reflectance data obtained with whole and pureed **cranberry** samples, resp. In the third stage, selections were based on anal. measurements performed on **juice** prepd. from samples selected in the preceeding stages.

L8 ANSWER 11 OF 32 HCA COPYRIGHT 2002 ACS

99:4325 Factors affecting the recovery of **juice** and **anthocyanin** from **cranberries**. Sapers, G. M.; Jones, S. B.; Maher, G. T. (East. Reg. Res. Cent., U.S. Dep. Agric., Philadelphia, PA, 19118, USA). J. Am. Soc. Hortic. Sci., 108(2), 246-9 (English) 1983. CODEN: JOSHB5. ISSN: 0003-1062.

- AB Factors affecting **anthocyanin** recovery in **juice** from pressed **cranberries** (*Vaccinium macrocarpon*) were investigated under lab. conditions. **Anthocyanin** recovery was unaffected by cultivar, total **anthocyanin** content, or **juice** yield. Variability in **anthocyanin** recovery was attributed to the heterogeneity of berry samples analyzed for total and **juice anthocyanin** and to differences in the efficiency of pigment extn. by **juice** liberated during pressing. Freeze-thaw treatment of **cranberries** increased **juice** yield by 50% and **juice anthocyanin** content by 15-fold. Microscopic observation of changes at the cellular level resulting from freeze-thaw treatment supported the **juice** yield and pigment recovery data. **Anthocyanin** recovery could be increased by double pressing and by tissue homogenization.
- L8 ANSWER 12 OF 32 HCA COPYRIGHT 2002 ACS  
93:112517 **Anthocyanin** recovery from **cranberry** pulp wastes by membrane technology. Woo, A. H.; Von Elbe, J. H.; Amundson, C. H. (Dep. Food Sci., Univ. Wisconsin, Madison, WI, 53706, USA). *J. Food Sci.*, 45(4), 875-9 (English) 1980. CODEN: JFDSAZ. ISSN: 0022-1147.
- AB **Anthocyanins** were recovered from com. **cranberry** pulp wastes under optimum extn. conditions by a 5-stage blending and solvent percolation procedure. Following solvent removal and filtration, the **anthocyanin** crude ext. was partially purified by ultrafiltration and concd. by reverse osmosis and vacuum evapn. The final conc. contained 0.11% **anthocyanins** on a dry wt. basis. The process can be continuous and be applied to other colorant prodn. from plant materials.
- L8 ANSWER 13 OF 32 HCA COPYRIGHT 2002 ACS  
92:127191 Effect of cinnamic acid on **anthocyanin** stability in **cranberry juice**. Camire, A. L.; Clydesdale, F. M.; Francis, F. J. (Dep. Food Sci. Nutr., Univ. Massachusetts, Amherst, MA, 01003, USA). *J. Food Prot.*, 43(1), 36-7 (English) 1980. CODEN: JFPRDR. ISSN: 0362-028X.
- AB The direct effect of cinnamic acid [621-82-9] on **anthocyanin** stability in **cranberry juice** without added ascorbic acid was investigated. The concn. of cinnamic acid was detd. throughout the storage study by high-performance liq. chromatog. (HPLC), and results indicated no loss of cinnamic acid either due to pasteurization or storage. Cinnamic acid had no significant effect on **anthocyanin** stability in **cranberry juice** during storage at ambient temp. at the levels used.
- L8 ANSWER 14 OF 32 HCA COPYRIGHT 2002 ACS  
91:37569 High-pressure liquid chromatography of **cranberry anthocyanins**. Camire, A. L.; Clydesdale, F. M. (Dep. Food Sci. Nutr., Univ. Massachusetts, Amherst, MA, 01003, USA). *J. Food Sci.*, 44(3), 926-7 (English) 1979. CODEN: JFDSAZ. ISSN: 0022-1147.
- AB The 4 major **anthocyanins** of **cranberries** were sepd. and purified by conventional paper chromatog. The purified individual **anthocyanins** were eluted from the paper with MeOH-HOAc-H<sub>2</sub>O (90:5:5) and concd. on a rotary evaporator (<30.degree.). The individual **anthocyanins** were chromatographed sep. and in a mixt. by a reversed-phase high-pressure liq. chromatog. (HPLC) system. Complete sepn. of all 4 **anthocyanins** took 1.7 h. A 50-mL sample of com. **cranberry juice** cocktail first purified by a GC-50 ion exchange column before injection into the HPLC showed the presence of 2 addnl. pigments when chromatographed.
- L8 ANSWER 15 OF 32 HCA COPYRIGHT 2002 ACS  
90:21015 Spray drying **anthocyanin** concentrates for use as food colorants. Main, J. H.; Clydesdale, F. M.; Francis, F. J. (Dep. Food Sci. Nutr., Univ. Massachusetts, Amherst, Mass., USA). *J. Food Sci.*, 43(6),

- 1693-4, 1697 (English) 1978. CODEN: JFDSAZ. ISSN: 0022-1147.
- AB Spray-dried powders from 3 **anthocyanin** sources were prepd. as food colorants. The sources were **cranberry** press cake, Concord grape **juice** filter trim and Roselle calyces. The 1st 2 were extd. with 95% EtOH, 0.01% citric acid mixt. and the 3rd was a water ext. prepd. in Trinidad. All 3 were concd. (10:1) in a vacuum pan and chilled prior to filtering. A carbohydrate carrier (Morrex 1918) was added to obtain a 30% total solids mixt. and the product was spray dried. Air outlet temps. of 90.degree. were suitable for prodn. of **anthocyanin** concs. of suitable bulk d. with a min. of **anthocyanin** degrdn.
- L8 ANSWER 16 OF 32 HCA COPYRIGHT 2002 ACS
- 85:75202 Recovery of **anthocyanin** from plant sources. Philip, Thomas (University Patents, Inc., USA). U.S. US 3963700 19760615, 3 pp. (English). CODEN: USXXAM. APPLICATION: US 1974-484656 19740701.
- AB A new **anthocyanin** recovery system from plant materials (grape, cherry, **cranberry**, and plum wastes or any leaf and fruit portions of plants which contain **anthocyanins**) based on tartaric acid-alkanol extn. followed by controlled pptn. of excess tartaric acid as K hydrogen tartrate is described. The acceptability of the **anthocyanin** ext. was evaluated by prepg. an artificial grape drink (.degree.Brix = 13.0, pH = 3.0) contg. water, sucrose, tartaric acid, and artificial grape flavor and colored with the **anthocyanin** conc. This artificial grape drink gave a normal red grape **juice** color and was acceptable to a panel of 3 judges.
- L8 ANSWER 17 OF 32 HCA COPYRIGHT 2002 ACS
- 84:178454 Effect of sterilization conditions on **cranberry juice anthocyanins**. Fang-Yung, A. F.; Kuznetsova, N. A. (Odess. Tekhnol. Inst. Pishchevoi Prom., Odessa, USSR). Izv. Vyssh. Uchebn. Zaved., Pishch. Tekhnol. (1), 83-6 (Russian) 1976. CODEN: IVUPA8.
- AB Heat treatment of **cranberry juice** during canning led to **anthocyanin** destruction which increased with increasing heating time and container size. Addn. of sugar to the **juice** protected the **anthocyanins** somewhat. For max. retention of color, containers no larger than 0.5 l. should be used, along with a sterilization temp. of 95.degree..
- L8 ANSWER 18 OF 32 HCA COPYRIGHT 2002 ACS
- 84:72715 Use of expanded color scales to predict chemical and visual changes in solutions. Johnson, L. E.; Clydesdale, F. M.; Francis, F. J. (Dep. Food Sci. Nutr., Univ. Massachusetts, Amherst, Mass., USA). J. Food Sci., 41(1), 74-7 (English) 1976. CODEN: JFDSAZ.
- AB **Cranberry juice** cocktail was chosen as a typical red fruit **juice**. Samples were heated at 65.degree. to simulate pigment degrdn. on storage. The heated samples were ranked for color visually and objectively using a Hunter color meter, a Gardner color meter, and a recording spectrophotometer. Most functions of color obtained from the instrument correlated highly with visual color except dominant wavelength, hue, and Hunter and Gardner b. Most instrumental values also correlated well with **anthocyanin** concn. except the three above. The expanded L, a\*, b\* scales, which were developed in previous work to eliminate the inversion of tristimulus scales with pigment concn. with dark beverages, also gave very high correlations with visual evaluations and with **anthocyanin** concns.
- L8 ANSWER 19 OF 32 HCA COPYRIGHT 2002 ACS
- 84:29428 Effect of the degree of maturity and conditions of thermal treatment on the rate of phenol compound disintegration in Belorussian **cranberries**. Kuznetsova, N. A. (Beloruss. Politekh. Inst., Minsk, USSR). Konservn. Ovoshchesush. Prom-st. (11), 27-8 (Russian) 1975. CODEN: KOPRAU.



AB Only ripe **cranberries** could be used for the manuf. of high quality **juice** because blanching of unripe berries promoted the conversion of leucoanthocyanins to unstable **anthocyanins** which readily oxidized to form brown pigments. Blanching at 98-100.degree. for 6 min destroyed oxidizing enzymes in whole berries so that subsequent maceration to produce **juice** resulted in a smaller loss of **anthocyanin** pigments.

L8 ANSWER 20 OF 32 HCA COPYRIGHT 2002 ACS

82:84587 Effect of flavonols on ascorbic acid and **anthocyanin** stability in model systems. Shrikhande, A. J.; Francis, F. J. (Dep. Food Sci. Nutr., Univ. Massachusetts, Amherst, Mass., USA). J. Food Sci., 39(5), 904-6 (English) 1974. CODEN: JFDSA Z.

AB Flavonols at 3-9 mg/100 ml retarded the oxidn. of ascorbic acid, while **cranberry anthocyanins** promoted the oxidn. of ascorbic acid. The protective effects of flavonols (quercetin and quercitrin) on ascorbic acid and an indirect protection for **anthocyanins** was shown. Any treatment which reduced the oxidn. of ascorbic acid, also reduced the loss of **anthocyanins**, if both were simultaneously present. Flavonols added to cherry **juice** did not protect **anthocyanins** upon storage because pasteurization of the **juice** caused the added flavonols to crystallize out.

L8 ANSWER 21 OF 32 HCA COPYRIGHT 2002 ACS

82:2947 Effect of metallic ions on color and pigment content of **cranberry juice** cocktail. Starr, M. S.; Francis, F. J. (Dep. Food Sci. Technol., Univ. Massachusetts, Amherst, Mass., USA). J. Food Sci., 38(6), 1043-6 (English) 1974. CODEN: JFDSA Z.

AB Al, Fe, and Sn each at 1, 5, and 10 ppm and Cu at 5, 25, and 50 ppm had a small protective effect on the **anthocyanin** pigments of **cranberry juice** cocktail, especially in the absence of added ascorbic acid and at low pH (2.2 as opposed to 2.7). Ascorbic acid added at 30 mg/178 ml promoted loss of color in the **juice** cocktails.

L8 ANSWER 22 OF 32 HCA COPYRIGHT 2002 ACS

78:134602 Ion exchange purified **anthocyanin** pigments as a colorant for **cranberry juice** cocktail. Chiriboga, C. D.; Francis, F. J. (Food Sci. Technol., Univ. Massachusetts, Amherst, Mass., USA). J. Food Sci., 38(3), 464-7 (English) 1973. CODEN: JFDSA Z.

AB Addn. of **anthocyanin** pigments, recovered by an ion-exchange process, to **cranberry** cocktails did not significantly affect the rate or extent of degrdn. of color. At moderate levels of use the flavor of the cocktail was not adversely affected by addn. of the pigment. The rate of sediment formation in the bottled cocktail was slightly increased by addn. of pigments, but this was not noticeable until about 6 months after processing. In general, these pigments appeared to be suitable for coloring **cranberry** products, and might have potential value in other food products where a bright red color is required.

L8 ANSWER 23 OF 32 HCA COPYRIGHT 2002 ACS

78:109499 **Juice** from **cranberries**, *Vaccinium oxycoccus*. Crncevic, Vlastimir (Inst. Prehrambeni Tehnol., Poljopr. Fak., Belgrade, Yugoslavia). Hrana Ishrana, 13(7-8), 319-22 (Serbo-Croatian) 1972. CODEN: HRISAK.

AB The chem. compn. of the **juice** obtained from **cranberries** imported from the Soviet Union, as well as that of pasteurized **juice** made from it has been studied as to the sp. wt., dry material, total sugar content, total acids, volatile acids, benzoic and ascorbic acids, pH, alc., tannin, ash, ash alky., and **anthocyanin**. From the **cranberry juice**, 4 types of pasteurized **juice** were made, one of them for diabetics, 2 for children, and one with a small content of alc. The sweetness index of these ranges from

11.2 to 19.0, in relation to raw **juice**, which is within the limits of the usual index for **juices**.

L8 ANSWER 24 OF 32 HCA COPYRIGHT 2002 ACS

78:27962 Biochemistry and physiology of commercially important fruits. 11. Soft fruits. Green, Audrey (Beecham Prod. (U.K.) Ltd., Coleford, Engl.). Biochem. Fruits Their Prod., Volume 2, 375-410. Editor(s): Hulme, Alfred C. Academic: London, Engl. (English) 1971. CODEN: 24HQA7.

AB A review and discussion with the following topics: characteristics of soft fruits and their changes with maturation; total solids and moisture, the solids content of soft fruit, changes in the solids of black-currants during maturation, insol. solids, pectin content of soft fruit, changes in black currant pectin during ripening, the sugar content, major acids, trace acids of mature fruit, ascorbic acid content, carotene, vitamin B, mineral and nitrogenous constituents, ash and polyphenol content of developing black currants, flavonoids, amino acids, amino acid content of blackcurrant and strawberry **juices**, **anthocyanins**, tannins and other phenolic compds., volatile constituents, and enzymes; some effects of cultural practice; postharvest changes, holding fruit, and transportation. The following fruits are included: bilberry, blackberry, raspberry, boysenberry, **cranberry**, loganberry, mulberry, gooseberry, currant (black and red), strawberry, and blueberry. 120 refs.

L8 ANSWER 25 OF 32 HCA COPYRIGHT 2002 ACS

78:14558 Effect of some metal ions on the color and stability of the **anthocyanin** pigments of **cranberry** cocktail. Starr, Martin Stephen (Univ. Massachusetts, Amherst, Mass., USA). 224 pp. Avail. Univ. Microfilms, Ann Arbor, Mich., Order No. 72-19,487 From: Diss. Abstr. Int. B 1972, 33(1), 260 (English) 1972.

AB Unavailable

L8 ANSWER 26 OF 32 HCA COPYRIGHT 2002 ACS

78:14556 Evaluation of ion exchange purified **anthocyanin** pigments as a colorant for **cranberry juice** cocktail. Chiriboga, Carlos Daniel (Univ. Massachusetts, Amherst, Mass., USA). 192 pp. Avail. Univ. Microfilms, Ann Arbor, Mich., Order No. 72-22,025 From: Diss. Abstr. Int. B 1972, 33(2), 777 (English) 1972.

AB Unavailable

L8 ANSWER 27 OF 32 HCA COPYRIGHT 2002 ACS

77:125015 **Anthocyanin** pigment changes in bilberries and **cranberries** during processing. Kuznetsova, N. A. (Beloruss. Politekh. Inst., Minsk, USSR). Nauch. Tr., Nauchnoizsled. Inst. Konserv. Prom., Plovdiv, 8, 147-57 (Bulgarian) 1971. CODEN: NNKPAP.

AB By means of paper chromatog., 7 **anthocyanin** pigments in bilberries and 3 in **cranberries** were found to undergo certain changes during sterilization. The **anthocyanins** in **cranberries** were less stable to heating. Ascorbic acid added to pulpy **juices** before sterilization caused decoloration. This process was accelerated with increasing amts. of ascorbic acid added. It was preferable to preserve the bilberry puree under CO<sub>2</sub> at 2-5.degree.. Storing the product in cold chambers at 5-8.degree. delays **anthocyanin** destruction.

L8 ANSWER 28 OF 32 HCA COPYRIGHT 2002 ACS

73:43966 **Anthocyanin** recovery system from **cranberry** pomace. Chiriboga, C.; Francis, F. J. (Univ. of Massachusetts, Amherst, Mass., USA). J. Amer. Soc. Hort. Sci., 95(2), 233-6 (English) 1970. CODEN: PASHA6.

AB **Anthocyanin** content is one of the limiting factors in **cranberry juice** cocktail. The press cake retains .apprx.40% of the pigment of the berries. Multiple extn. of the pomace with MeOH contg. 0.03% HCl removes over 90%. After removal of the MeOH by

vacuum distn., the resulting aq. soln. yields its **anthocyanin** to Amberlite C G-50 resin, from which it can be eluted with 0.0001% HCl after removal of impurities with water. On concn. the pigment can be added to the **juice**.

L8 ANSWER 29 OF 32 HCA COPYRIGHT 2002 ACS

69:105195 Oxygen and ascorbic acid effect on the relative stability of four **anthocyanin** pigments in **cranberry juice**.

Starr, M. S.; Francis, F. J. (Univ. of Massachusetts, Amherst, Mass., USA). Food Technol. (Chicago), 22(10), 1293-5 (English) 1968. CODEN: FOTEOA.

AB Increased addn. of ascorbic acid and headspace O<sub>2</sub> to com. prepd. **cranberry juice** caused increased pigment loss during storage. The galactoside pigments were more stable than the arabinosides. No difference was found between cyanidin and peonidin pigments. A degradation index increased linearly with storage time.

L8 ANSWER 30 OF 32 HCA COPYRIGHT 2002 ACS

68:103991 Quantitative methods for **anthocyanins**. II. Determination of total **anthocyanin** and degradation index for **cranberry juice**. Fuleki, Tibor; Francis, Frederick J. (Univ. of Massachusetts, Amherst, Mass., USA). J. Food Sci., 33(1), 78-83 (English) 1968. CODEN: JFDSAZ.

AB The improved method described for the estn. of **anthocyanin** minimizes interference due to brownish degradation products that accumulate during storage. Alteration of the pH does not affect the absorbance of the degradation products, while it changes the absorbance of the **anthocyanins** extensively. Thus, the **anthocyanins** are estd. from absorbance at 510 nm. of solns. dild. with pH 1.0 and 4.5 buffers (0.2N KCl-0.2N HCl, (25:67), and N AcONa-N HCl-water, (100:60:90), resp.), and reference to absorptivities for the **cranberry anthocyanins** in these buffers. The data could give an indication of **anthocyanin** degradation.

L8 ANSWER 31 OF 32 HCA COPYRIGHT 2002 ACS

55:133039 Original Reference No. 55:25082d-f Spectrophotometric investigations on the color and quality of some fruit **juices** and sirups. Wojtowicz, M. B. (Inst. Lebensmittelind, Landwirtschaftlichen Hochschule, Warsaw). Nahrung, 5, 138-54 (Unavailable) 1961.

AB Spectrophotometric extinction measurements in the region of 400-600 m.mu. were made on fresh fruit **juices** and their mixts. with various chem. and phys. agents. The **juices** of bar-, rasp-, straw-, and whortleberries, and black currants gave characteristic absorption max. about 500 m.mu.; the **juices** of **cranberries**, rhubarb, and sweet cherries did not. Comparison of the extinction curves of untreated samples dild. with H<sub>2</sub>O with samples to which AlCl<sub>3</sub> had been added enabled conclusions to be drawn about the state of natural **anthocyanin** substances of the cyanidine type in **juices** and sirups, such as those derived from cherries. Measurements of dild. **juice** at 420 and 650 and of AlCl<sub>3</sub>-treated **juices** at 530 m.mu., by a modification of Meschter's method of simplified color indexes (Color in food. A symposium of the Natl. Acad. Sci., Natl Research Council, Washington, D.C. 1954) showed C/B (C = units of redness, B = units of yellow-brown intensity), of sirups of good quality exceeded 8; and was less for discolored products. The proportion of raw **juice** employed in the prepn. of sirups by evaluating the C units of the **juice**, could be approxd.

L8 ANSWER 32 OF 32 HCA COPYRIGHT 2002 ACS

34:15405 Original Reference No. 34:2377b-g **Anthocyanins** V. The pigments of the berries of Fatsia japonica. Hayasi, Kozo Acta Phytochim. (Japan), 11, 91-108 (Unavailable) 1939.

AB Berries of Fatsia japonica gathered in Tokyo were pressed and the

juice discarded. The skins were sepd. from the seeds and some resinous material by rubbing in H<sub>2</sub>O. After partial drying by pressing, the skins (about 25% of the original berry material) were extd. with HOAc at room temp. for 3 days. The pigment was slowly pptd. as a thick sirup by addn. of 3 vols. of ether. The crude pigment was freed from some waxy material by soln. in 1% MeOH-HCl and repptn. by 3 vols. of ether. By repeating essentially the same process the ppt. finally adhered to the glass. Further purification was made difficult by the presence of resinous waxy matter. Ultimately a cryst. picrate was obtained by soln. of the ppt. in cold satd. aq. picric acid and subsequent standing at 0.degree.. The yield of picrate was somewhat less than 5%. The air-dried substance contained 6.5 mols. of H<sub>2</sub>O which it lost at 100.degree.. By soln. in 3% MeOH-HCl and pptn. by 3 vols. of ether the picrate was converted into a crude chloride. The yield was about 0.18%. A pure sample was obtained by dissolving this material in 38% HCl and allowing it to stand at 0.degree. overnight. Longer standing caused hydrolysis. Since 10% NaOH did not decomp. the pigment, no org. acid is attached to any part of the mol. The air-dried chloride, contg. 6.5 mols. H<sub>2</sub>O, sintered at 185.degree. and decompd. 191-2.degree.. It gave no test for OMe. By standing a month it lost 4 mols. H<sub>2</sub>O. The remaining H<sub>2</sub>O was eliminated by drying at 100.degree.. Qualitatively the pigment was shown to be identical with idein isolated from **cranberries**. Its distribution value between HCl and AmOH was 14.93. On acid hydrolysis it yielded cyanidin and galactose; the former, subjected briefly to alkali fusion, gave phloroglucinol and protocatechuic acid. After methylation with Me<sub>2</sub>SO<sub>4</sub> in H the aglucon yielded veratric acid. The conclusions concerning the nature of the pigment, idein, 3-galactosidylcyanidin chloride, chemically arrived at, were confirmed by absorption spectra. A small amt. of the flavone deriv. quercetin was also present in the berries. This was isolated by extg. the fruit with 1% MeOH-HCl and by pptg. the flavone and **anthocyanin** as Pb salts. Ten % MeOH-HCl with these yielded a soln. of the pigments from which the red one was pptd. by 3 vols. ether. By alc. and H<sub>2</sub>O the flavanol was finally obtained in a slightly impure state and yielded a penta-Ac deriv. which proved to be that of quercetin.

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Set	Items	Description
S1	1976	{VACCINIUM OR V OR O} () (MACROCARPUM OR MACROCARPON OR MACROCARPUS OR OXYCOCCUS OR OXYCOCCOS)
S2	991	COWBERR??? ? OR FOXBERR??? ? OR MOUNTAINBERR??? ? OR ROCKBERR??? ? OR LINGONBERR??? ? OR (COW OR FOX OR MOUNTAIN OR ROCK OR LINGON) ()BERR??? ?
S3	6530	CRANBERR??? ? OR CRAN()BERR??? ?
S4	42446	ANTHOCYANIN? OR CYANIN? ? OR ANTHOCYANOSID? OR ANTHOCYANIDIN? OR ANTHO()CYAN?????? ? OR DIFRAREL OR SEFCAL
S5	1227835	PIGMENT?????? ? OR COLOUR?????? ? OR COLOR?????? ? OR TINCT???? ? OR TINT???? ? OR HUE? ?
S6	836363	RED OR REDDISH? OR CRIMSON? OR SCARLET? OR REDHUE? OR REDCOLOR? OR REDCOLOUR?
S7	523	V()VITIS()IDAEA
S8	12774	COLORFREE OR COLOURFREE OR HUEFREE OR ACHROMIA? OR PIGMENTFREE OR TINCTFREE OR TINTFREE OR COLORLESS OR COLOURLESS OR HUELESS OR PIGMENTLESS
S9	22830	TINCTLESS OR TINTLESS OR UNCOLOR? OR UNCOLOUR? OR UNHUE? OR UNPIGMENT? OR UNTINCT? OR UNTINT? OR DECOLOR? OR DECOLOUR? OR DEHUE? OR DEPIGMENT?
S10	12605	DETINCT? OR DETINT? OR S5() (FREE OR LESS) OR (UN OR DE) ()S5
S11	14357	S4:S6(3N) (RECOVER? OR RECLAIM? OR RECLAM? OR RETRIEV? OR S-ALVAG? OR RECOUP? OR RECUP? OR HARVEST? OR COLLECT?)
S12	0	S4:S6(3N)RE() (COVER??? ? OR CLAIM???? ? OR CLAM?????? ? OR COUP???????? ? OR CUP???????? ?)
S13	58224	S4:S6(3N) (FILTER? OR FILTR? OR SEP? ? OR PURIF?????? ? OR -EXTRACT? OR EXT? ? OR REMOV? OR REDUC???? ? OR REDN? OR SEPARAT? OR DESTROY? OR DESTRUCT?)
S14	28141	S4:S6(3N) (LOSS OR ULTRAFILT? OR MICROFILT? OR DEGRAD? OR I-

SOLAT? OR NEUTRALI? OR PURG? OR ELIMINAT? OR STRIPP??? ? OR S-  
TRIP OR STRIPS)

S15 30402 S4:S6(3N) (DIMINISH? OR DECRE? OR LESSEN? OR LOWER? OR MINI-  
M? OR ERADICAT? OR OBVIAT? OR EXTIRP? OR LACK? OR DEFICIEN?)

S16 3236 S4:S6(3N) (DEVOID? OR ABSENT? OR ABSENC?)

S17 6037 (RID OR 'NOT' OR WITHOUT OR ANTI) (1W)S4:S6

S18 8164 S1:S3 OR S7

S19 80 S18(10N)S8:S17

S20 4 S19/1999:2002

S21 76 S19 NOT S20

S22 45 RD (unique items)

?t22/7/all

22/7/1 (Item 1 from file: 6)  
DIALOG(R)File 6:NTIS  
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0928106 NTIS Accession Number: PB82-856121/XAB  
**Cranberries: Chemical Composition. 1972-November, 1981 (Citations from the Food Science and Technology Abstracts Data Base)**  
(Rept. for Jan 72-Nov 81)  
National Technical Information Service, Springfield, VA.  
Corp. Source Codes: 055665000  
Nov 81 143p  
Languages: English Document Type: Bibliography  
Journal Announcement: GRAI8203  
Prepared in cooperation with the International Food Information Service, Frankfurt (Germany, F.R.).  
Order this product from NTIS by: phone at 1-800-553-NTIS (U.S. customers); (703)605-6000 (other countries); fax at (703)321-8547; and email at orders@ntis.fedworld.gov. NTIS is located at 5285 Port Royal Road, Springfield, VA, 22161, USA.  
NTIS Prices: PC N01/MF N01  
Country of Publication: United States  
This bibliography contains citations concerning the chemical composition of **cranberries** including the **isolation** of the **anthocyanins**. Sugar and ascorbic acid content, pH, and total acidity of **cranberries** are discussed. The isolation and characterization of the anthocyanin are also considered. The processing and keeping quality of the berries are noted. (Contains 132 citations fully indexed and including a title list.)

22/7/2 (Item 1 from file: 35)  
DIALOG(R)File 35:Dissertation Abs Online  
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440688 ORDER NO: AAD72-22025  
**AN EVALUATION OF ION EXCHANGE PURIFIED ANTHOCYANIN PIGMENTS AS A COLORANT FOR CRANBERRY JUICE COCKTAIL**  
Author: CHIRIBOGA, CARLOS DANIEL  
Degree: PH.D.  
Year: 1972  
Corporate Source/Institution: UNIVERSITY OF MASSACHUSETTS (0118)  
Source: VOLUME 33/02-B OF DISSERTATION ABSTRACTS INTERNATIONAL.  
PAGE 777. 192 PAGES

22/7/3 (Item 1 from file: 144)  
DIALOG(R)File 144:Pascal  
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06133902 PASCAL No.: 85-0395609  
**Chromatographic separation of anthocyanins in cowberry (Lingonberry) Vaccinium vitis-idaea L.**  
(Separation chromatographique des anthocyanines d'airelle rouge, Vaccinium vitis-idaea L.)  
ANDERSEN Y M  
Univ. Bergen, dep. chemistry, Bergen, Norway

Journal: Journal of Food Science, 1985, 50 (5) 1230-1232

ISSN: 0022-1147 Availability: CNRS-713

No. of Refs.: 14 ref.

Project No.: 2 tabl.

Document Type: P (Serial) ; A (Analytic)

Country of Publication: USA

Note: 3 fig.

Language: English

Les anthocyanines d'airelles rouges sont fractionnees et analysees par chromatographie en couche mince et par CLHP. Identification du delphinidine-3-glucoside. La teneur en anthocyanines totales des airelles est de 174 mg/100 g de fruits frais

**22/7/4 (Item 2 from file: 144)**

DIALOG(R)File 144:Pascal

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05129707 PASCAL No.: 83-0391389

**Factors affecting the recovery of price and anthocyanin from cranberries**

SAPERS G M; JONES S B; MAHER G T

ARS, eastern regional res. cent., Philadelphia PA 19118, USA

Journal: J. Am. Soc. hortic. Sci., 1983, 108 (2) 246-249

Availability: INRA-Genet.

No. of Refs.: 11 ref.

Document Type: P (Serial) ; A (Analytic)

Country of Publication: USA

Language: English

**22/7/5 (Item 3 from file: 144)**

DIALOG(R)File 144:Pascal

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05057657 PASCAL No.: 83-0315195

**Factors affecting the recovery of juice and anthocyanin from cranberries**

**(Facteurs influencant la recuperation du jus et des anthocyanes de myrtille)**

SAPERS G M; JONES S B; MAHER G T

ARS, eastern regional res. cent., Philadelphia, USA

Journal: Journal of the American Society for Horticultural Science, 1983, 108 (2) 246-249

ISSN: 0003-1062 Availability: CNRS-717

No. of Refs.: 11 ref.

Project No.: 3 tabl.

Document Type: P (Serial) ; A (Analytic)

Country of Publication: USA

Note: 2 fig.

Language: English

Les facteurs etudies sont le cultivar, la teneur totale en anthocyanes, le rendement en jus (pour les anthocyanes), un traitement de congelation-decongelation ou d'homogeneisation des tissus (pour les jus)

**22/7/6 (Item 4 from file: 144)**

DIALOG(R)File 144:Pascal

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02993064 PASCAL No.: 81-0025789

**ANTHOCYANIN RECOVERY FROM CRANBERRY PULP WASTES BY MEMBRANE TECHNOLOGY**

WOO A H; VON ELBE J H; AMUNDSON C H

UNIV. WISCONSIN-MADISON, DEP. FOOD SCI./MADISON WI 53706, USA

Journal: J. FOOD SCI., 1980, 45 (4) 875-879

Availability: CNRS-713

No. of Refs.: 21 REF.

Document Type: P (SERIAL) ; A (ANALYTIC)

Country of Publication: USA

Language: ENGLISH

L'EXTRAIT BRUT OBTENU PAR MELANGE ET PERCOLATION AVEC UN SOLVANT A PARTIR DE MARCS DE VACCINIUM MACROCARPON EST PARTIELLEMENT PURIFIE PAR ULTRAFILTRATION, PUIS CONCENTRE PAR OSMOSE INVERSE ET EVAPORATION SOUS VIDE. LE CONCENTRE FINAL CONTIENT 0,11% (POIDS SEC) D'ANTHOCYANES. LA TECHNIQUE PEUT ETRE ADAPTEE EN CONTINU ET APPLIQUEE A L'OBTENTION D'AUTRES COLORANTS A PARTIR DE PRODUITS VEGETAUX

22/7/7 (Item 5 from file: 144)

DIALOG(R)File 144:Pascal

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02499449 PASCAL No.: 80-0437666

**CRANBERRY PIGMENTS AS COLORANTS FOR BEVERAGES AND GELATIN DESSERTS**

CLYDESDALE F M; MAIN J H; FRANCIS F J

UNIV. MASSACHUSETTS, DEP. FOOD SCI. NUTRITION, AMHERST MA 01003, USA

Journal: J. FOOD PROTECT., 1979, 42 (3) 196-201

Availability: CNRS-547

No. of Refs.: 12 REF.

Document Type: P (SERIAL) ; A (ANALYTIC)

Country of Publication: USA

Language: ENGLISH

PREPARATION, A PARTIR DE MARCS SECHES DE **VACCINIUM MACROCARPON** AIT. D'UN EXTRAIT DE **PIGMENTS** ANTHOCYANIQUES EN POUDRE, QUE L'ON ADDITIONNE A DES POUDRES POUR PREPARATION D'UNE BOISSON PARFUMEE A LA CERISE OU D'UN DESSERT A LA GELATINE PARFUME A LA FRAISE. PRECISIONS SUR LA STABILITE DU PIGMENT (COMPARE AU ROUGE NO 2), EN FONCTION DE LA TEMPERATURE ET DE L'HUMIDITE RELATIVE EN COURS DE CONSERVATION, ET DE LA COMPOSITION DE L'ATMOSPHERE DE L'EMBALLAGE (N SUB 2 OU AIR). L'EXTRAIT COMMUNIQUE UNE FLAVEUR ASTRINGENTE ET UNE PURIFICATION PLUS PUSSEE SERAIT NECESSAIRE

22/7/8 (Item 6 from file: 144)

DIALOG(R)File 144:Pascal

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00227815 PASCAL No.: 73-0023209

**ION EXCHANGE PURIFIED ANTHOCYANIN PIGMENTS AS A COLORANT FOR CRANBERRY JUICE COCKTAIL**

**(PIGMENTS ANTHOCYANIQUES PURIFIES PAR ECHANGE D'IONS, COLORANTS POUR LES COCKTAILS AU JUS D'AIRESSELLE)**

CHIRIBOGA C D; FRANCIS F J

DEP. FOOD SCI. TECHNOL., UNIV. MASSACHUSETTS, AMHERST, MASS.

Journal: J. FOOD SCI., 1973, 38 (3) 464-467

Availability: CNRS-713

No. of Refs.: 15 REF.

Document Type: P (SERIAL)

Country of Publication: USA

Language: ENGLISH

RECUPERATION, A PARTIR DES MARCS DE PRESSE DES AIRESSELLES DES PIGMENTS ANTHOCYANIQUES ET FLAVONIQUES EN VUE DE LEUR UTILISATION POUR COLORER LES COCKTAILS AU JUS D'AIRESSELLE PEU COLORES. L'ADDITION DU PIGMENT N'ALTERE PAS LA STABILITE DE LA COULEUR; ET LE SEUIL DE PERCEPTION DE SAVEUR SE SITUE A ENVIRON 29 MG DE PIGMENT BRUT POUR 100 ML DE COCKTAIL. ON PEUT AUSSI UTILISER CES PIGMENTS COMME COLORANTS ALIMENTAIRES ROUGES

22/7/9 (Item 1 from file: 305)

DIALOG(R)File 305:Analytical Abstracts

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129971 AA Accession No.: 49-04-F-00064 DOC. TYPE: Journal

**Detection of oenocyanin in cranberry juice cocktail by HPLC anthocyanin profile.**

AUTHOR: Hale, M. L.; Francis, F. J.; Fagerson, I. S.



CORPORATE SOURCE: Dept. Food Sci. and Nutr., Univ. Massachusetts, Amherst,  
MA 01003, USA  
JOURNAL: J. Food Sci., Volume: 51, Issue: 6, Page(s): 1511-1513  
CODEN: JFDSA2 ISSN: 0022-1147  
PUBLICATION DATE: Nov-Dec 1986 (861100/861200) LANGUAGE: English  
ABSTRACT: Adulteration of cranberry juice products by oenocyanin (I; colourant from grapes) was detected by comparing HPLC profiles of **cranberry** anthocyanins and those from I. **Pigments** were **extracted** and concentrated by chromatography on Amberlite CG 50 anion-exchange resin before analysis on a column (15 cm .times. 4.6 mm) of reversed-phase styrene - divinylbenzene (PLRP-S) (5 .mu.m) and a similar 5-cm pre-column. Gradient elution was used with solvent A: aq. 10% acetic acid and solvent B: methanol - H2O - acetic acid (6:3:1) with both solvents buffered to pH 1.6 with 3% H3PO4. Operation from 0 to 90% of B in A was carried out in 30 min. Detection was at 530 nm with a mobile-phase flow rate of 0.8 ml min<sup>-1</sup>. Comparison of the chromatograms of sample pigments with commercial I samples could detect the replacement of 5% or more of cranberry juice in its cocktail by a I soln. (A.C.)

22/7/10 (Item 2 from file: 305)

DIALOG(R)File 305:Analytical Abstracts  
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120306 AA Accession No.: 48-07-F-00041 DOC. TYPE: Journal  
**Chromatographic separation of anthocyanins in cowberry (lingonberry) Vaccinium vitis-idaea L.**  
AUTHOR: Andersen, O. M.  
CORPORATE SOURCE: Dept. Chem., Univ. Bergen, 5000 Bergen, Norway  
JOURNAL: J. Food Sci., Volume: 50, Issue: 5, Page(s): 1230-1232  
CODEN: JFDSA2 ISSN: 0022-1147  
PUBLICATION DATE: Sep-Oct 1985 (850900/851000) LANGUAGE: English  
ABSTRACT: The sample was homogenized with ethanolic 1% HCl and the extract was filtered and evaporated to dryness. The residue was dissolved in the mobile phase (butanol - acetic acid - H2O (4:1:5)) and subjected to droplet counter-current chromatography with 300 glass capillary columns (40 cm .times. 2 mm) connected in series; the flow rate was 7 ml h<sup>-1</sup>, with detection at 510 nm. The eluate fractions were analysed by HPLC on a column (10 cm .times. 5 mm) of ODS-Hypersil (3 .mu.m) with gradient elution with 10 to 70% of formic acid - H2O - methanol (1:4:5) in aq. 10% formic acid and photodiode array detection. Analysis was also by TLC on cellulose with formic acid - conc. HCl - H2O (2:1:2) and the upper layer of the butanol - acetic acid - H2O solvent system as mobile phases. Sugars were identified by TLC with ethyl acetate - pyridine - H2O (20:7:5) and 2-methylpropan-2-ol - formic acid - H2O - ethyl methyl ketone (8:3:3:6) as the mobile phases. In addition to the 3-galactoside, 3-arabinoside and 3-glucoside of cyanidin, delphinidin-3-glucoside was also identified. (R.F.S.)

22/7/11 (Item 1 from file: 315)

DIALOG(R)File 315:ChemEng & Biotec Abs  
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397045 CEABA Accession No.: 27-10-021469 DOCUMENT TYPE: Patent  
**Title: Adhesion inhibiting composition.**  
AUTHOR: Walker, E. B. ; Mickelsen, R. A. ; Michelsen, J. N.  
CORPORATE SOURCE: JLB, Inc. Ogden, UT 84403 USA  
CODEN: PIXXD2  
PATENT NUMBER: WO 9526197  
PUBLICATION DATE: 5 Oct 1995 (951005) LANGUAGE: English  
PRIORITY PATENT APPLICATION(S) & DATE(S): US 218504 (940325)  
ABSTRACT: An extract is disclosed which is prepared from plants of the genus *Vaccinium*, especially cranberries. The adhesion-inhibiting extract is enriched for polyphenol and flavonoid compounds, lacks simple sugars, has low levels of benzoic acid relative to raw **cranberries**, and mostly **lacks anthocyanins**. Preparation and

methods of use of the extract are also given.

22/7/12 (Item 1 from file: 434)

DIALOG(R)File 434:SciSearch(R) Cited Ref Sci  
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06557699 Genuine Article#: ALA41 Number of References: 5

**Title: RELATIONSHIP BETWEEN FRUIT SIZE AND EXTRACTABLE ANTHOCYANIN  
CONTENT IN CRANBERRY**

Author(s): VORSA N; WELKER WV

Corporate Source: RUTGERS STATE UNIV, BLUEBERRY & CRANBERRY RES  
CTR/CHATSWORTH//NJ/08019; USDA ARS APPALACHIAN FRUIT RES  
STN/KEARNEYSVILLE//WV/25430

Journal: HORTSCIENCE, 1985, V20, N3, P402-403

Language: ENGLISH Document Type: ARTICLE

22/7/13 (Item 1 from file: 5)

DIALOG(R)File 5:Biosis Previews(R)  
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07865161 BIOSIS NO.: 000092124527

**ANTHOCYANINS IN FRUITS OF VACCINIUM-OXYCOCCUS L. SMALL CRANBERRY**

AUTHOR: ANDERSEN O M

AUTHOR ADDRESS: DEP. CHEM., UNIV. BERGEN, ALLEGT 41, N-5007 BERGEN, NORW.

JOURNAL: J FOOD SCI 54 (2). 1991. 383-384. 1991

FULL JOURNAL NAME: Journal of Food Science

CODEN: JFDSA

RECORD TYPE: Abstract

LANGUAGE: ENGLISH

ABSTRACT: Peonidin-3-glucoside (41.9%) and cyanidin-3-glucoside (38.3%) were the main **anthocyanins isolated** from fruits of **Vaccinium oxycoccus** L. (Small **cranberry**). Smaller amounts of the 3-monogalactosides and 3-monoarabinosides of peonidin and cyanidin were found in addition to the 3-monoglucosides of delphinidin, petunidin and malvidin. The total anthocyanin content in the fruit averaged 78 mg/100g fresh fruit. This anthocyanin pattern is different from that of the American cranberry (*Vaccinium macrocarpon* L.).

22/7/14 (Item 2 from file: 5)

DIALOG(R)File 5:Biosis Previews(R)  
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06028018 BIOSIS NO.: 000035119381

**CRANBERRY COLOR EXTRACTION US PATENT-4775477. OCTOBER 4 1988**

AUTHOR: STAHL H D; BORDONARO M E; NINI D

AUTHOR ADDRESS: SCARSDALE, N.Y., USA.

JOURNAL: OFF GAZ U S PAT TRADEMARK OFF PAT 1095 (1). 1988. 267. 1988

FULL JOURNAL NAME: Official Gazette of the United States Patent and Trademark Office Patents

CODEN: OGUPE

DOCUMENT TYPE: Patent

RECORD TYPE: Citation

LANGUAGE: ENGLISH

22/7/15 (Item 3 from file: 5)

DIALOG(R)File 5:Biosis Previews(R)  
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05084202 BIOSIS NO.: 000081042326

**DETECTION OF ENOCYANIN IN CRANBERRY JUICE COCKTAIL BY COLOR AND PIGMENT  
PROFILE**

AUTHOR: FRANCIS F J

AUTHOR ADDRESS: DEP. FOOD SCI. AND NUTRITION, UNIV. MASS., AMHERST, MASS.

01003.

JOURNAL: J FOOD SCI 50 (6). 1985. 1640-1642, 1661. 1985  
FULL JOURNAL NAME: Journal of Food Science  
CODEN: JFDSA  
RECORD TYPE: Abstract  
LANGUAGE: ENGLISH

ABSTRACT: Addition of enocyanin to cranberry juice cocktail can be determined by a four-step color and pigment profile. Enocyanin colorant is slightly more blue, therefore, a simple measurement of color will detect samples with 12% or less **cranberry** juice. **Cranberry** juice cocktail normally contains 25% **cranberry** juice. **Anthocyanins** and flavonoids, **recoverable** by a CG-50 ion exchange column, are lower in samples with 12% or less cranberry juice. Anthocyanin aglycones, found in grapes and not in cranberries, can be detected by paper chromatography in Formic reagent. Replacement of 50% of cranberry juice by a solution of enocyanin and citric acid, can be detected by paper chromatography of anthocyanins in 1% HCl in water.

22/7/16 (Item 4 from file: 5)

DIALOG(R)File 5:Biosis Previews(R)  
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04764611 BIOSIS NO.: 000080067738

**RELATIONSHIP BETWEEN FRUIT SIZE AND EXTRACTABLE ANTHOCYANIN CONTENT IN CRANBERRY VACCINIUM - MACROCARPON**

AUTHOR: VORSA N; WELKER W V

AUTHOR ADDRESS: BLUEBERRY AND CRANBERRY RES. CENT., RUTGERS UNIV., CHATSWORTH, N.J. 08019.

JOURNAL: HORTSCIENCE 20 (3). 1985. 402-403. 1985

FULL JOURNAL NAME: Hortscience

CODEN: HJHSA

RECORD TYPE: Abstract

LANGUAGE: ENGLISH

ABSTRACT: The relationship between fruit size and **extractable anthocyanins** was investigated in 6 **cranberry** cultivars: Franklin, Ben Lear, Early Black, Crowley, Stevens, and Pilgrim. **Extractable anthocyanins decrease** linearly as fruit-size, measured by fruit weight, of the sample increased. The relationship was especially apparent for dark-colored cultivars and the dark-colored berries with a cultivar. Results suggests that fruit size can contribute to the disparity between fruit color and extractable anthocyanins, and selection for larger-berried genotypes to increase yields may, concomitantly, reduce anthocyanin yield.

22/7/17 (Item 5 from file: 5)

DIALOG(R)File 5:Biosis Previews(R)  
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03994168 BIOSIS NO.: 000076079734

**FACTORS AFFECTING THE RECOVERY OF JUICE AND ANTHO CYANIN FROM CRANBERRIES VACCINIUM - MACROCARPON**

AUTHOR: SAPERS G M; JONES S B; MAHER G T

AUTHOR ADDRESS: EASTERN REGIONAL RESEARCH CENTER, AGRIC. RESEARCH SERVICE, U.S. DEP. AGRIC., PHILADELPHIA, PA 19118.

JOURNAL: J AM SOC HORTIC SCI 108 (2). 1983. 246-249. 1983

FULL JOURNAL NAME: Journal of the American Society for Horticultural Science

CODEN: JOSHB

RECORD TYPE: Abstract

LANGUAGE: ENGLISH

ABSTRACT: Factors affecting **anthocyanin recovery** in juice from pressed **cranberries** (**V. macrocarpon** Ait.) were investigated under laboratory conditions. **Anthocyanin recovery** was unaffected by cultivar, total

anthocyanin content or juice yield. Variability in anthocyanin recovery was attributed to the heterogeneity of berry samples analyzed for total and juice anthocyanin and to differences in the efficiency of **pigment extraction** by juice liberated during pressing. Freeze-thaw treatment of **cranberries** increased juice yield by as much as 50% and juice anthocyanin content by as much as 15-fold. Microscopic observation of changes at the cellular level resulting from freeze-thaw treatment supported the juice yield and pigment recovery data. Anthocyanin recovery could be increased by double pressing and by tissue homogenization.

22/7/18 (Item 6 from file: 5)

DIALOG(R)File 5:Biosis Previews(R)  
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03568344 BIOSIS NO.: 000073071425

**PARTIAL PURIFICATION AND CHARACTERIZATION OF AN ENDO POLY GALACTURONASE  
FROM MONILINIA-FRUCTICOLA AND ITS IMPLICATION IN THE BROWN ROT DISEASE OF  
PEACHES**

AUTHOR: PAYNTER V A; JEN J J

AUTHOR ADDRESS: DEP. PLANT PATHOL. PHYSIOL., CLEMSON UNIV., CLEMSON, S.C.  
29631, USA.

JOURNAL: BIOCHEM PHYSIOL PFLANZ (BPP) 176 (8). 1981. 710-727. 1981

FULL JOURNAL NAME: Biochemie und Physiologie der Pflanzen (Bpp)

CODEN: BPPFA

RECORD TYPE: Abstract

LANGUAGE: ENGLISH

ABSTRACT: A polygalacturonase (PG) from cultural media of *M. fructicola* was purified 50-fold with 30% yield by ultrafiltration followed by successive chromatography on Sephadex G-75, Ecteola cellulose, and Biogel P-150 columns. The enzyme moved as a single band on disc gel electrophoresis and exhibited a single symmetrical peak on ultracentrifugation. Optimal (PG4) activity was at pH 5.2 and 50.degree. C with good enzyme stability between pH 4-6. The active form of the enzyme appeared to be a tetramer of MW near 80,000. The enzyme was stable at acid pH but dissociated at pH > 9 to form an inactive monomer with a MW of 20,000. Disc gel electrophoretic patterns supported this hypothesis. Kinetic studies indicated a Vmax of 2700 .mu.moles/min per mg protein and a Km of 1 .times. 10<sup>-6</sup> M with sodium pectate as substrate. Although viscosity and uronic acid dehydrogenase measurements indicated the endo nature of this PG, hydrolysis of pectate yielded galacturonic acid as the major end product. **Anthocyanins** extracted from grapes, peaches and **cranberries** caused varied inhibition while various polyphenol compounds and benlate, a fungicide, did not inhibit this PG at all. The properties of this enzyme in relation to host-pathogen interaction were discussed.

22/7/19 (Item 7 from file: 5)

DIALOG(R)File 5:Biosis Previews(R)  
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03031642 BIOSIS NO.: 000070057260

**ANTHO CYANIN RECOVERY FROM CRANBERRY VACCINIUM - MACROCARPON PULP  
WASTES BY MEMBRANE TECHNOLOGY**

AUTHOR: WOO A H; VON ELBE J H; AMUNDSON C H

AUTHOR ADDRESS: DEP. FOOD SCI., UNIV. WIS.-MADISON, MADISON, WIS. 53706,  
USA.

JOURNAL: J FOOD SCI 45 (4). 1980. 875-880. 1980

FULL JOURNAL NAME: Journal of Food Science

CODEN: JFDSA

RECORD TYPE: Abstract

LANGUAGE: ENGLISH

ABSTRACT: **Anthocyanins** were **recovered** from commercial **cranberry** pulp wastes under optimum extraction conditions by a 5-stage blending and solvent percolation procedure. Following solvent removal and filtration, the anthocyanin crude extract was partially purified by ultrafiltration,

concentrated by reverse osmosis and vacuum evaporation. The final concentrate contained 0.11% anthocyanins on dry weight basis. The process developed can be continuous and be applied to other colorant production from plant materials.

**22/7/20 (Item 8 from file: 5)**

DIALOG(R)File 5:Biosis Previews(R)  
(c) 2002 BIOSIS. All rts. reserv.

01876826 BIOSIS NO.: 000061036909

**USE OF EXPANDED COLOR SCALES TO PREDICT CHEMICAL AND VISUAL CHANGES IN SOLUTIONS**

AUTHOR: JOHNSON L E; CLYDESDALE F M; FRANCIS F J  
JOURNAL: J FOOD SCI 41 (1). 1976 74-77. 1976  
FULL JOURNAL NAME: Journal of Food Science  
CODEN: JFDSA  
RECORD TYPE: Citation

**22/7/21 (Item 9 from file: 5)**

DIALOG(R)File 5:Biosis Previews(R)  
(c) 2002 BIOSIS. All rts. reserv.

01232593 BIOSIS NO.: 000056042806

**ION EXCHANGE PURIFIED ANTHO CYANIN PIGMENTS AS A COLORANT FOR CRANBERRY JUICE COCKTAIL**

AUTHOR: CHIRIBOGA C D; FRANCIS F J  
JOURNAL: J FOOD SCI 38 (3). 1973 464-467. 1973  
FULL JOURNAL NAME: Journal of Food Science  
CODEN: JFDSA  
RECORD TYPE: Citation

**22/7/22 (Item 10 from file: 5)**

DIALOG(R)File 5:Biosis Previews(R)  
(c) 2002 BIOSIS. All rts. reserv.

00653824 BIOSIS NO.: 000052013802

**QUANTITATIVE METHODS FOR ANTHOCYANINS PART 5 SEPARATION OF CRANBERRY -D PHENOLICS BY ELECTROPHORESIS AND CHROMATOGRAPHY**

AUTHOR: CANSFIELD P E; FRANCIS F J  
JOURNAL: J FOOD SCI 35 (3). 1970 309-311. 1970  
FULL JOURNAL NAME: Journal of Food Science  
CODEN: JFDSA  
RECORD TYPE: Citation

**22/7/23 (Item 11 from file: 5)**

DIALOG(R)File 5:Biosis Previews(R)  
(c) 2002 BIOSIS. All rts. reserv.

00601371 BIOSIS NO.: 000007051336

**POST HARVEST COLOR PROMOTION IN CRANBERRY -D WITH ETHYLENE**

AUTHOR: CRAKER L E  
JOURNAL: HORTSCIENCE 6 (2). 1971 137-139 1971  
FULL JOURNAL NAME: Hortscience  
CODEN: HJHSA  
RECORD TYPE: Citation

**22/7/24 (Item 12 from file: 5)**

DIALOG(R)File 5:Biosis Previews(R)  
(c) 2002 BIOSIS. All rts. reserv.

00504432 BIOSIS NO.: 000051094422

**AN ANTHOCYANIN RECOVERY SYSTEM FROM CRANBERRY -D POMACE**  
AUTHOR: CHIRIBOGA C; FRANCIS F J

JOURNAL: J AMER SOC HORT SCI 95 (2). 1970 233-236. 1970  
CODEN: JOSHB  
RECORD TYPE: Citation

22/7/25 (Item 1 from file: 10)

DIALOG(R)File 10:AGRICOLA

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2875304 89232122 Holding Library: RQF; AGL

**Increasing the color of cranberries after removal from the vines /  
Bonnie R. Fudge**

Fudge, Bonnie Reid.

New Brunswick, N.J. : New Jersey Agricultural Experiment Station, 1930.

24 p. : ill. ; 23 cm.

Bulletin / New Jersey Agricultural Experiment Station ; 504

DNAL CALL NO: 100 N46S (1) no.504

Language: English

Bibliography: p. 24.

Place of Publication: New Jersey

Government Source: State/Provincial

Subfile: UIU; EXP STN (STATE EXPER. STN); NJ;

Document Type: Monograph; Bibliographies

22/7/26 (Item 2 from file: 10)

DIALOG(R)File 10:AGRICOLA

(c) format only 2002 The Dialog Corporation. All rts. reserv.

1988992 82036193 Holding Library: AGL

**Photochemical degradation of betanine and selected anthocyanins  
(Natural food colorants isolated from red beets and cranberries )**

Attoe, E.L. Elbe, J.H. von.

Chicago, , Institute of Food Technologists.

Journal of food science. v. 46 (6) , Nov/Dec 1981. p. 1934-1937. ill.

ISSN: 0021-1147

NAL: 389.8 F7322

Language: English

Includes 31 ref.

Subfile: OTHER US (NOT EXP STN, EXT, USDA; SINCE 12/76);

Document Type: ARTICLE

22/7/27 (Item 3 from file: 10)

DIALOG(R)File 10:AGRICOLA

(c) format only 2002 The Dialog Corporation. All rts. reserv.

1723836 80000892 Holding Library: AGB

**High-pressure liquid chromatography of cranberry anthocyanins**

Camire, A.L. Clydesdale, F.M.

Chicago, , Institute of Food Technologists

Journal of food science v. 44 (3) , May/June 1979. p. 926-927. ill.,  
charts.

ISSN: 0021-1147

Language: ENGLISH

9 ref.

Intellectual Level: SPECIALIZED (FOR SPECIAL AUDIENCES)

Subfile: OTHER US (NOT EXP STN, EXT, USDA; SINCE 12/76); FNC (FOOD AND  
NUTRITION);

Document Type: ARTICLE

Abstract: The four major **anthocyanins** of **cranberries** were **separated**  
and **purified** by conventional paper chromatography. The **purified**  
individual **anthocyanins** were eluted from the paper by methanol-acetic  
acid-water (90:50:5) and concentrated on a rotary evaporator. The  
individual anthocyanins were chromatographed separately and in a mixture by  
a reversed-phase high-pressure liquid chromatographic (HPLC) system.  
Complete separation of all four anthocyanins took less than 1 hour 40  
minutes. Chromato

22/7/28 (Item 1 from file: 50)  
DIALOG(R)File 50:CAB Abstracts  
(c) 2002 CAB International. All rts. reserv.

00839628 CAB Accession Number: 790376771  
**Effect of ethephon on color, abscission, and keeping quality of 'McFarlin' cranberry.**  
Shawa, A. Y.  
Washington State University, Long Beach, WA 98631, USA.  
HortScience vol. 14 (2): p.168-169  
Publication Year: 1979  
ISSN: 0018-5345 --  
Language: English  
Document Type: Journal article  
Ethephon applied in 1975 and 1977, 2 weeks before harvest, at 1.1 kg/ha increased the anthocyanin content of **cranberry** fruits, but treatments applied in 1976 did **not** affect **colour**. All applications of ethephon increased CO2 production and percentage breakdown of the fruit but pullforce, berry size, weight, acidity, and soluble solids were unaffected. 10 ref.

22/7/29 (Item 1 from file: 51)  
DIALOG(R)File 51:Food Sci.&Tech.Abs  
(c) 2002 FSTA IFIS Publishing. All rts. reserv.

00648543 92-10-j0063 SUBFILE: FSTA  
**Timing and severity of pruning effects on cranberry yield components and fruit anthocyanin.**  
Strik, B. C.; Poole, A.  
Dep. of Hort., Oregon State Univ., Corvallis, OR 97331-2911, USA  
HortScience 1991 , 26 (12) 1462-1464  
NOTE: 10 ref.  
DOCUMENT TYPE: Journal Article ISSN: 0018-5345  
LANGUAGE: English  
Timing and severity of pruning in a 30-yr-old commercial McFarlin cranberry (*Vaccinium macrocarpon* Ait.) bed were studied. Treatments in 1989 and 1990 consisted of early or late pruning and heavy, moderate, light, or no pruning. In 1989, the unpruned and lightly pruned vines had a higher total plant fresh wt., fewer berries, higher berry yield, longer and more fruiting uprights, and fewer nonfruiting uprights compared with moderately or heavily pruned vines. Average length of nonfruiting uprights and anthocyanin content of berries in 1989 were not influenced by pruning. In 1990, the effects of pruning severity were similar to 1989. In 1990, unpruned vines had a lower % of fruit set and berries contained less **anthocyanin** than pruned vines. **Reduced anthocyanin** content is a disadvantage in **cranberry** production as colour is a major quality factor. (From En summ.) (VJG)

22/7/30 (Item 2 from file: 51)  
DIALOG(R)File 51:Food Sci.&Tech.Abs  
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00615691 90-12-j0048 SUBFILE: FSTA  
**Benzoylglucoses from two Vaccinium species.**  
Heimhuber, B.; Wray, V.; Galensa, R.; Herrmann, K.  
Inst. fuer Lebensmittelchem., Univ. Hannover, D-3000 Hanover 91, Federal Republic of Germany  
Phytochemistry 1990 , 29 (8) 2726-2727  
NOTE: 8 ref.  
DOCUMENT TYPE: Journal Article ISSN: 0031-9422  
LANGUAGE: English  
Qualitative and quantitative investigations were carried out into benzoylglucoses occurring in red whortleberries (*Vaccinium vitis-idaea*) and in cranberries (*Vaccinium macrocarpon*). 1-O-Benzoyl-BETA-D-glucose (main

component), 2-O-benzoyl-BETA-D-glucose, 6-O-benzoyl-ALPHA-D-glucose, and 6-O-benzoyl-BETA-D-glucose were **isolated** from the **red** whortleberries and **cranberries** and quantified. The identity of the compounds was established by comparison with synthetic reference substances whose structures were confirmed spectroscopically (UV, IR, HNMR). (VJG)

**22/7/31 (Item 3 from file: 51)**

DIALOG(R)File 51:Food Sci.&Tech.Abs

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00373992 89-04-v0150 SUBFILE: FSTA

Cranberry color extraction .

Stahl, H. D.; Bordonaro, M. E.; Nini, D.

General Foods Corp.

PATENT CO.: United States Patent 1988

PATENT NO.: US 4 775 477

NOTE: US 115472 (871030) (General Foods, White Plains, NY, USA)

DOCUMENT TYPE: Patent

LANGUAGE: English

Extraction of cranberry presscake involves grinding the presscake, preferably with a filter aid such as rice hulls; subjecting this mixture to water extraction; microfiltering the extract to remove colloidal high mol. wt. components; and passing the microfiltered extract through reverse osmosis to recover a red-coloured solution. (AS)

**22/7/32 (Item 4 from file: 51)**

DIALOG(R)File 51:Food Sci.&Tech.Abs

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00148874 78-05-j0532 SUBFILE: FSTA

**Cranberry juice concentrate as a red food coloring.**

Volpe, T.

American Inst. of Baking, Chicago, Illinois, USA

Food Product Development 1976 , 10 (9) 13-14

DOCUMENT TYPE: Journal Article

LANGUAGE: English

Cherry pie fillings containing either no colour additive, Red No. 2, or various % of cranberry concentrate were evaluated on the basis of colour. The products were rated according to preference and acceptability, as viewed under fluorescent light. Most pleasing colours occurred with 1.5 to 2.0% concn. of cranberry juice colouring (based on total wt. of material to be thickened). Overall acceptability was greater for cranberry concentrate. Results of Baker's Scoring Test (Scale 1-10) for added colour, Red No. 2 and 1.5% and 2.0% cranberry concentrate resp. were: flavour, 7.0, 7.5, 8.0, 7.5; colour, 5.0, 7.5, 9.0, 9.5; viscosity 7.5, 8.0, 7.0, 7.0; and syneresis, 10.0, 10.0, 10.0, 10.0. Freeze-thaw stability tests were performed to determine acceptability of cranberry concentrate filling in frozen products. The product was nearly as viscous after the first freeze-thaw cycle as other fillings. There was no evidence of wash out or **degradation of red colour** as a result of freezing the **cranberry** concentrate containing product. Applications could include beverages, gelatins, canned fruits and even as a possible natural maraschino cherry colouring. (VJG)

**22/7/33 (Item 5 from file: 51)**

DIALOG(R)File 51:Food Sci.&Tech.Abs

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00101049 75-08-h1261 SUBFILE: FSTA

**(Kinetics of the thermal degradation of anthocyanins during the sterilization and storage of bilberry and raspberry juices.)**

**Kinetik des Abbaues der Anthocyane bei der Sterilisation und Lagerung von Heidelbeer- und Brombeersaft.**

Tancev((Tanchev)), S. S.

Hochschule fuer Lebensmittelind., Plovdiv, Bulgaria



Nahrung 1974 , 18 (3) 303-308

NOTE: 8 ref.

DOCUMENT TYPE: Journal Article

LANGUAGE: German SUMMARY LANGUAGE: English; Russian

Details are given of studies on the effects pH (2.5, 3.0, 3.5, 4.0, 4.5), heat treatment (at 78 DEGREE , 88 DEGREE , 98 DEGREE or 108 DEGREE C) and storage temp. (10 DEGREE , 20 DEGREE , 30 DEGREE or 40 DEGREE C) on the kinetics of **anthocyanin degradation** in samples of bilberry (*Vaccinium myrtillus*) juice, **cowberry** (*Vaccinium vitis-idaea*) juice and raspberry (*Rubus caesius*) juice. Tables of values are given for the anthocyanin decomposition rate constants, times required for a 50% reduction in anthocyanin concn., activation coeff. and Q10 factors. The results show that the rate of decomposition of anthocyanins increases with increasing pH, storage temp. and heat treatment temp. Anthocyanin decomposition rates were different in the 3 different juices; this is attributed to differences in the composition of the juices. (AJDW)

22/7/34 (Item 6 from file: 51)

DIALOG(R)File 51:Food Sci.&Tech.Abs

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00096334 75-05-a0250 SUBFILE: FSTA

**The use of colorimetric data to predict chemical and visual changes in solutions.**

Johnson, L. E.; Clydesdale, F. M.; Francis, F. J.

Dept. of Food Sci. & Nutr., Univ. of Massachusetts, Amherst, Massachusetts, USA

IV International Congress of Food Science and Technology 1974 , 3 , 10-12

DOCUMENT TYPE: Conference proceedings

LANGUAGE: English

The optimal characterization of food materials by colorimetry techniques and the need for colorimetric data to predict chemical and visual changes are discussed. Tests were carried out to predict pigment degradation in the presence of the formation of new compounds while such pigments are degrading. Colour measurements were taken hourly by 3 different colour meters, a pH differential method, and visual assessment of cranberry juice cocktail heated in a water bath at 150 DEGREE F to cause degradation of pigments and formation of brown colour. Results indicated that equations could be used to predict pigment degradation as well as concentration. (AL)

22/7/35 (Item 7 from file: 51)

DIALOG(R)File 51:Food Sci.&Tech.Abs

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00085529 74-09-j1289 SUBFILE: FSTA

**(Anthocyanins and anthocyanidins in various parts of the bilberry and cowberry.)**

Borukh, I. F.

Tovarovedenie 1974 , 7 , 42-43

NOTE: 4 ref.

DOCUMENT TYPE: Journal Article

LANGUAGE: Russian

Spectrophotometry was used to determine the content of anthocyanins in bilberries and cowberries, and the composition of the anthocyanins and anthocyanidins in the skin and pulp was determined by paper chromatography. The skin of the bilberry contained 5.4 TIMES as much anthocyanins as the pulp; the figure for the **cowberry** was 12 TIMES . The difference is attributed mainly to the **lack of colour** in the pulp of the **cowberry** . The same anthocyanins were found in all parts of the bilberry, viz. delphinidin-3-monoglycoside, delphinidin-3-rhamonoglucoside, delphinidin-5-monoglucoside and cyanidin-3-xyloglycoside. The pulp of the cowberry contained only cyanidin-3-xyloglucoside, while the skin and the whole berry also contained cyanidin-3,5-diglyceride. The skin of the bilberry contained 2 anthocyanidins, viz. delphinidin and cyanidin (and

their derivatives), while the pulp contained only the former. Cowberry skin and pulp contained only cyanidin (in a very low concn. in the pulp). (HBr)

22/7/36 (Item 8 from file: 51)  
DIALOG(R)File 51:Food Sci.&Tech.Abs  
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00082673 74-07-j0891 SUBFILE: FSTA  
**(Anthocyanins of Belorussian cranberries.)**  
Fan-Yung, A. F.; Kuznetsova, N. A.  
Odesskii Tekh. Inst. Pishchevoi Promyshlennosti im. M. V. Lomonosova,  
USSR  
Izvestiya Vysshikh Uchebnykh Zavedenii, Pishchevaya Tekhnologiya 1972  
, No. 2, 35-38  
NOTE: 7 ref.  
DOCUMENT TYPE: Journal Article  
LANGUAGE: Russian  
Good **separation** of the **anthocyanins** in **cranberries** was obtained by descending paper chromatography with a butanol:acetic acid:water solvent (4:1:5), and a high level of purification was attained with repeated chromatography using a 90% formic acid:2N HCl solvent (1:1). The anthocyanins of cranberries grown in the Belorussian SSR contained 4 individual pigments, identified as cyanidin-3-galactoside, cyanidin-3-arabinoside, peonidin-3-galactoside and peonidin-3-arabinoside. (HBr)

22/7/37 (Item 9 from file: 51)  
DIALOG(R)File 51:Food Sci.&Tech.Abs  
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00053264 72-09-vj1457 SUBFILE: S  
**Cranberry yield and anthocyanin content as influenced by ethephon, SADH, and malathion.**  
Eck, P.  
Rutgers Univ., New Brunswick, New Jersey, USA  
Journal. American Society for Horticultural Science 1972 , 97 (2)  
213-214  
NOTE: 5 ref.  
DOCUMENT TYPE: Journal Article  
LANGUAGE: English  
In 3 consecutive yr of treatment, ethephon applied at the rate of 1 lb/acre of active material and malathion at 2G121 lb/acre of active material, 2 wk before **harvest**, increased **anthocyanin** content in G378Early BlackG378 **cranberries**, but SADH (succinic acid-2,2-dimethylhydrazide) and 4 and 8 lb/acre did not. None of the materials adversely affected yield or berry size during the 3 yr of testing. (AS)

22/7/38 (Item 10 from file: 51)  
DIALOG(R)File 51:Food Sci.&Tech.Abs  
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00050679 72-07-vj1249 SUBFILE: S  
**The effect of preharvest malathion sprays upon cranberry fruit colour.**  
Eaton, G. W.; Zuckerman, B. M.; Shawa, A. Y.; Eck, P.; Dana, M. N.; Garren, R.; Lockhart, C. L.  
Univ. of British Columbia, Vancouver 8, Canada  
Journal. American Society for Horticultural Science 1969 , 94 (6)  
590-592  
NOTE: 7 ref.  
DOCUMENT TYPE: Journal Article  
LANGUAGE: English  
The effectiveness of malathion as a colour enhancement agent for cranberry fruit was tested in a co-operative experiment involving 7 commerical cranberry growing regions of North America. Sprays of malathion

80% EC at 2G121 lb active ingredient/acre applied either 2 or 3 wk before harvest increased **anthocyanin** content of G378McFarlinG378, G378Early BlackG378 and G378SearlesG378 **cranberries** . (AS)

22/7/39 (Item 11 from file: 51)  
DIALOG(R)File 51:Food Sci.&Tech.Abs  
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00043108 72-02-va0068 SUBFILE: S  
**Chromatography of anthocyanins on columns of insoluble polyvinylpyrrolidone.**

Teeling, C. G. van; Cansfield, P. E.; Gallop, R. A.  
Food Sci. Dept., Univ., Fort Garry, Winnipeg 19, Manitoba, Canada  
Journal of Chromatographic Science 1971 , 9 (8) 505-509

NOTE: 20 ref.

DOCUMENT TYPE: Journal Article

LANGUAGE: English

A standardized method for polyvinylpyrrolidone (PVP) column chromatography of anthocyanins is described. The method is useful for purification of **anthocyanins extracted** from plant material (e.g. strawberry, grape, **cranberry** , blackcurrant, cherry, raspberry). In certain cases, the method can be used for separation of individual anthocyanins from mixtures. The relationships between structures of anthocyanins and the order of elution of these compounds from PVP columns are discussed. (AS)

22/7/40 (Item 12 from file: 51)  
DIALOG(R)File 51:Food Sci.&Tech.Abs  
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00027996 71-03-h0249 SUBFILE: FSTA  
**On line instruments control juice colour, Brix.**

Anon.

Food Engineering 1970 , 42 (8) 70-72

DOCUMENT TYPE: Journal Article

LANGUAGE: English

A continuous system incorporating automatic colour control has been proposed for the production of cranberry juice cocktail. This is illustrated diagrammatically and shows how a refractometer controls the blending of press juice, sugar solution, and water, with an on-line spectrophotometer actuating addition of natural colour concentrate as required. A procedure for **extracting residual pigments from cranberry** press cake was developed to provide the colour concentrate. The pomace was extracted with alcohol, which was flashed off leaving the pigment and impurities and the pigment was eluted with alcohol. After a second evaporation of alcohol a stabilized water solution of pigment was recovered. The alcohol was also recovered for re-use. With appropriate modifications the new process could be applied to on-line colour control of citrus and grape juices. The economics of the system have not yet been fully analysed. (MHEG)

22/7/41 (Item 1 from file: 53)  
DIALOG(R)File 53:FOODLINE(R): Food Science & Technology  
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00719264 FOODLINE ACCESSION NUMBER: 386077  
**Anthocyanin analysis as a measure of glycosidase activity in enzymes for juice processing.**

Wightman J D; Wrolstad R E  
Journal of Food Science 60 (4), 862-867 (19 ref.)  
1995

ISSN NO: 0022-1947

LANGUAGE: English

DOCUMENT TYPE: Journal article

FOODLINE UPDATE CODE: 19951019

ABSTRACT: Macerating enzymes used in juice processing have been reported to produce the undesirable effect of degrading the anthocyanin pigment content. This paper reports the development of an HPLC technique for determining the glycosidase activity of enzyme preparations in a cranberry-juice system. Twenty-seven preparations were analysed, and several were found to have beta-galactosidase activity, which can decompose cranberry juice pigments. The effects of the enzyme activity on the colour stability of **cranberry** juice were investigated. The authors report that **pigment loss** was higher when enzymes were used with juice than when they were used with crushed fruit.

SECTION HEADING: BEVERAGES

**22/7/42 (Item 2 from file: 53)**

DIALOG(R)File 53:FOODLINE(R): Food Science & Technology  
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00651032 FOODLINE ACCESSION NUMBER: 476399

**Agent for improving taste of food.**

Muranashi S; Masuda H; Tanabe M; Matsuki J; Ushigoe M

PATENT ASSIGNEE: Ogawa Koryo KK

PATENT: JP 10042824 A

PRIORITY APPLICATION DATE: 19960805

NOTES: Date of publication: 17.2.98

X-REFERENCE: ADDITIVES

LANGUAGE: Japanese

SUMMARY LANGUAGE: English

DOCUMENT TYPE: Patent

FOODLINE UPDATE CODE: 19980923

ABSTRACT: The agent for improving the flavour of foods is produced as follows. Concentrated **cranberry** juice is subjected to **decoloration** treatment using a porous resin and/or activated carbon or further to electrophoresis using an ion-exchange membrane. This acidulant improves the flavour of foods containing an organic acid (citric, malic, etc.).

SECTION HEADING: ADDITIVES

**22/7/43 (Item 1 from file: 79)**

DIALOG(R)File 79:Foods Adlibra(TM)  
(c) 2002 General Mills. All rts. reserv.

178703 88221003

**Cranberry color extraction (from cranberry presscakes)**

Assignee Name(s): GENERAL FOODS CORP

United States Patent, October 04, 1988

CODEN: USXXAM

Publication Date: 19881004

Patent Country/Kind: US

Patent No.: US 4775477

Doc Type: PATENT

**Cranberry color extraction (from cranberry presscakes)**

**22/7/44 (Item 2 from file: 79)**

DIALOG(R)File 79:Foods Adlibra(TM)  
(c) 2002 General Mills. All rts. reserv.

105823 85101509

**Fruits**

Author(s): NA

Journal of Food Science, 50(5) (September 1985), p. p 1230-1232 ?

CODEN: JFDSA2

Publication Date: 19850901

Doc Type: JOURNAL

**Fruits: Chromatographic separation of anthocyanins in cowberry (lingonberry) Vaccinium vitis-idaea L. (O M Andersen)**

22/7/45 (Item 3 from file: 79)  
DIALOG(R)File 79:Foods Adlibra(TM)  
(c) 2002 General Mills. All rts. reserv.

43735 80020807

Anthocyanin recovery from cranberry pulp wastes by membrane . . .

Author(s): NA

Journal of Food Science, (July 1980), p. p 875-879

CODEN: JFDSAZ

Publication Date: 19800701

Doc Type: JOURNAL

Anthocyanin recovery from cranberry pulp wastes by membrane  
technology.